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Contact allergy to di-isodecyl phthalate

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Key words: allergic contact dermatitis; occupational; plastics.

Di-isodecyl phthalate (DIDP) is a plasticizer used in the production of plastic and plastic coating to increase flexibility. It is a mixture of compounds derived from the esterification of phthalic acid and isomeric decyl alcohols.

In a facility producing durable vinyl-coated cover material on a dyed backing paper base, we found 2 workers with a positive patch test reaction to DIDP. DIDP was used as a carrier for 10,10'-oxybisphenoxarsine (CAS 58-36-6), a biocide used in products to protect the vinyl-coated materials from decay by mould, mildew, and bacteria.

Case 1

A 53-year-old male reported an itching dermatitis with papules, scaling and erythema on both forearms, marking the border of the gloves used during his work as an operator. No signs of dermatitis were seen elsewhere on his body. There were no signs of atopy in his medical history.

The complaints started without any change in exposure of the skin. Treatment by the general practitioner with a topical steroid helped in periods of exacerbation of the skin complaints. During holidays, the skin problems diminished. Over time, the period needed for relapse after work resumption shortened from weeks to days.

Case 2

A 61-year-old male with atopic dermatitis reported suffering skin complaints of red, itchy bumps on both arms, his trunk and his legs for over 6 years. Erythematous papules on the forearms, legs and trunk were seen on dermatological inspection.

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Fig. 1. Case 1 2% pet. solution of DIDP on D7

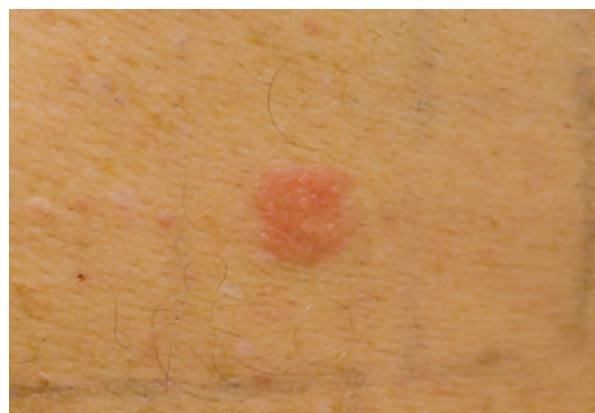


Fig. 2. Case 2% pet. solution of DIDP on D7

During a 4-week holiday, the skin problems diminished. The relapse time after work resumption varied between days and weeks.

Both workers performed wet work and had daily exposure to many different chemicals, among which was the biocide with DIDP. Protective gloves were not always used.

Both workers were patch tested with the local extended European baseline series, the acrylates series, and a specially prepared series of chemicals used in the facility. In both cases, a 2+ positive patch test reaction was seen with a 2% pet. solution of DIDP on D7. A 1+ patch test reaction was seen on D3 in case 1. In 11 colleagues, the test result was negative.

Discussion

DIDP is found in a variety of products, including vinyl gloves, hoses, and artificial leather. In consumer products,

the level of DIDP is low. The toxicity risk classification for the general public is also low (1). Sensitization to DIDP was reported in one case in 1993, reflecting DIDP in a consumer product: an identification band (2). Despite the wide use of DIDP in many occupational settings, we did not find any earlier reports of occupationally relevant sensitization. In both presented cases, the aetiology of the contact dermatitis is multifactorial. Skin irritation is probably a relevant factor, but the daily exposure to a compound containing a substance to which sensitization is shown indicates occupationally relevant contact allergy in these cases.

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